

EXHIBIT 8



A Professional Limited Liability Company

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June 21, 2023

Christopher Schenck
Valve Corporation
10400 NE 4th Street, Suite 1400
Bellevue, WA 98004

FRE 408 – SETTLEMENT COMMUNICATION

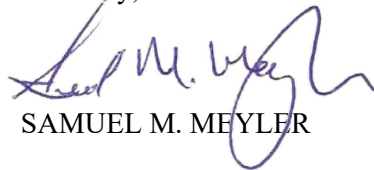
**Re: Social Positioning Input Systems, LLC v Valve Corporation
Rothschild Broadcast Distribution Systems, LLC v Valve Corporation
Quantum Technology Innovations, LLC v Valve Corporation**

Dear Mr. Schenck:

As you will recall, I represent Social Positioning Input Systems, LLC (“SPIS”). In addition to SPIS, I represent Rothschild Broadcast Distribution Systems, LLC (“RBDS”) and Quantum Technology Innovations, LLC (“QTI”) with regard to their respective claims against Valve. For reference, I am including preliminary claim charts that have been prepared in anticipation of litigation.

If Valve would like to explore a potential resolution to these claims, my clients are willing to delay the filing of their complaints as long as they feel that Valve is working toward a resolution in good faith. If I do not hear from you or Valve by June 30, 2023, my clients will assume that Valve would prefer to litigate.

Sincerely,



SAMUEL M. MEYLER

Sent via email
Enclosure(s)

Infringement Claim Chart for U.S. Pat. No. 7,650,376 V. Valve Corporation (“Defendant”)

Claim 37	Evidence
<p>37. A computer readable storage medium or media encoded with one or more computer programs including instructions for effecting the provision of content over a network, comprising:</p>	<p>Defendant (Valve Corporation) provides an app i.e., the media encoded with a computer program (Steam app), and includes instructions for effecting the provision of content (i.e., Games) over a network (i.e., internet).</p> <div data-bbox="672 438 1758 893" data-label="Image"> </div> <p>Source: https://www.valvesoftware.com/en/about</p> <div data-bbox="616 989 1814 1404" data-label="Image"> </div> <p>Source: https://store.steampowered.com/about/</p>

Steam Broadcast

Stream your gameplay live with the click of a button, and share your game with friends or the rest of the community.

Source: <https://store.steampowered.com/about/>

Release your Game

Steamworks is the set of tools and services that help game developers and publishers get the most out of distributing games on Steam.

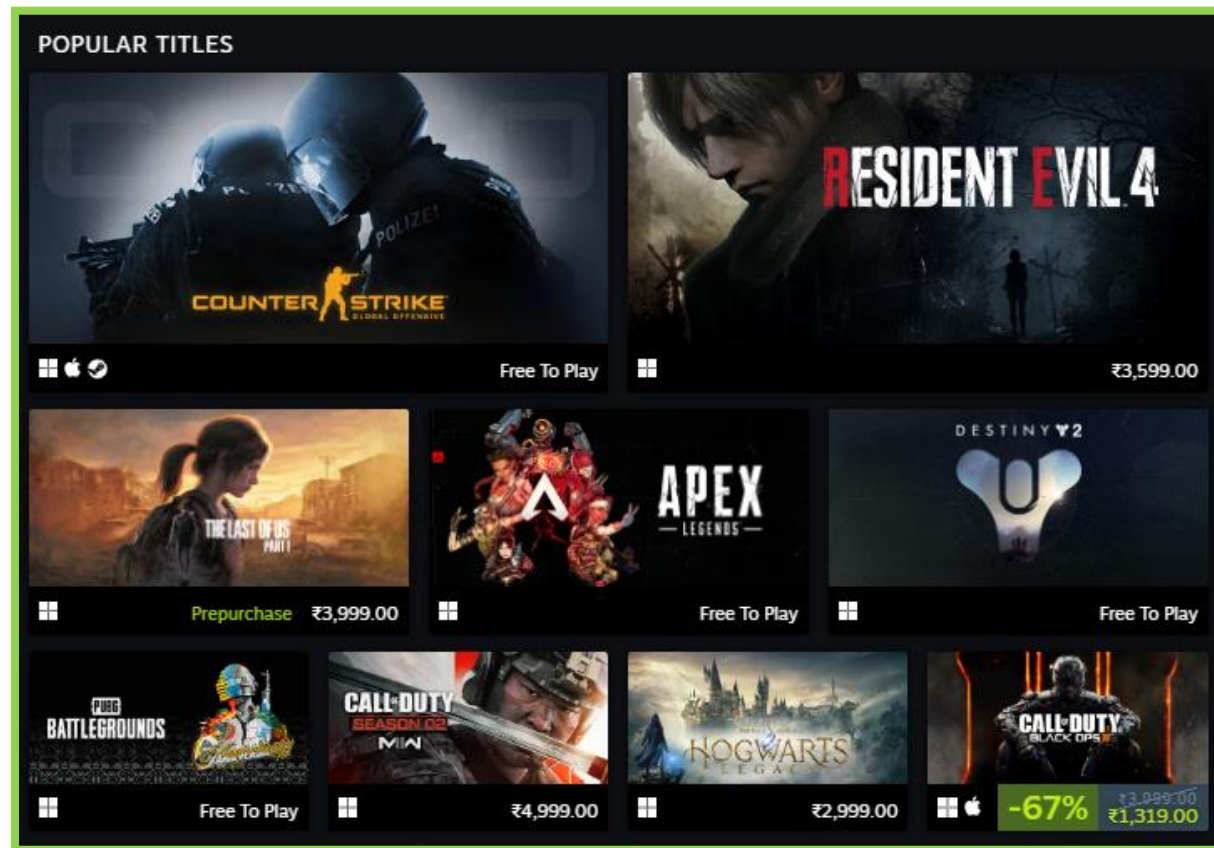
Source: <https://store.steampowered.com/about/>

Access Games Instantly

With nearly 30,000 games from AAA to indie and everything in-between. Enjoy exclusive deals, automatic game updates, and other great perks.

[Browse the Store →](#)

Source: <https://store.steampowered.com/about/>



Source: https://store.steampowered.com/tags/en/Action/?flavor=contenthub_topsellers

a) instructions for receiving a request from a client for specified content;

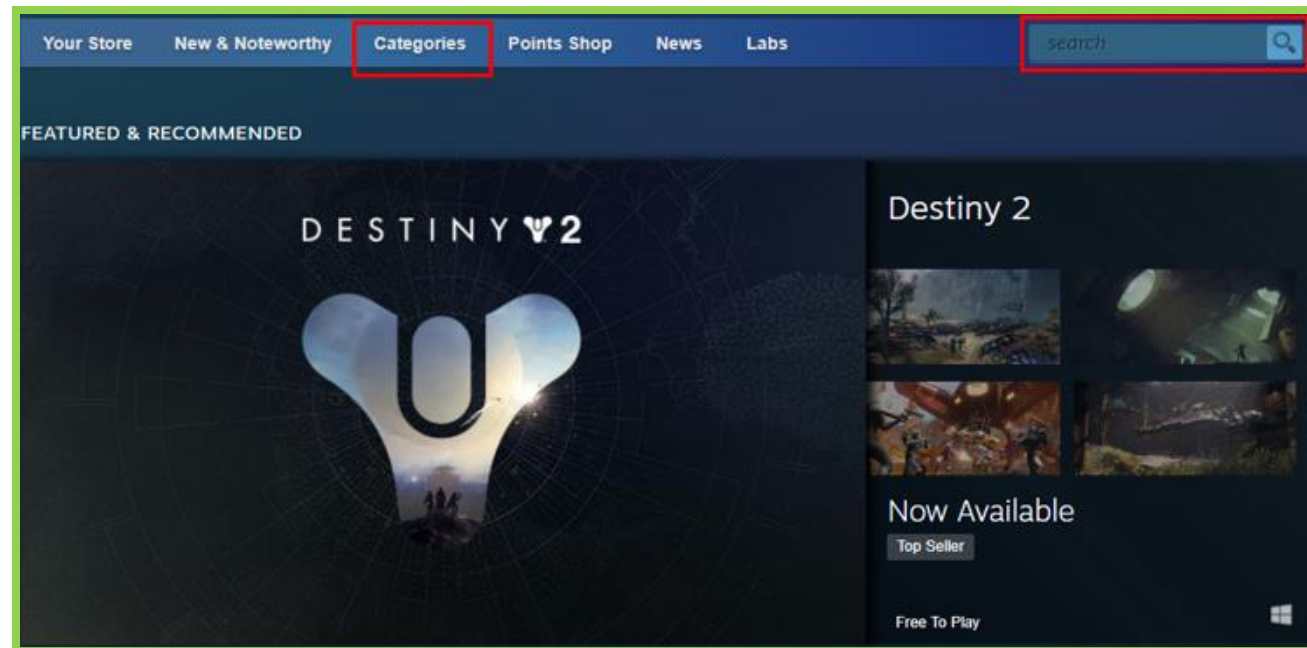
As shown below, the Steam app provides a user interface (presented through instructions within the app) that presents an interface to receive an input request from a user for specified content like games by different genres.

Access Games Instantly

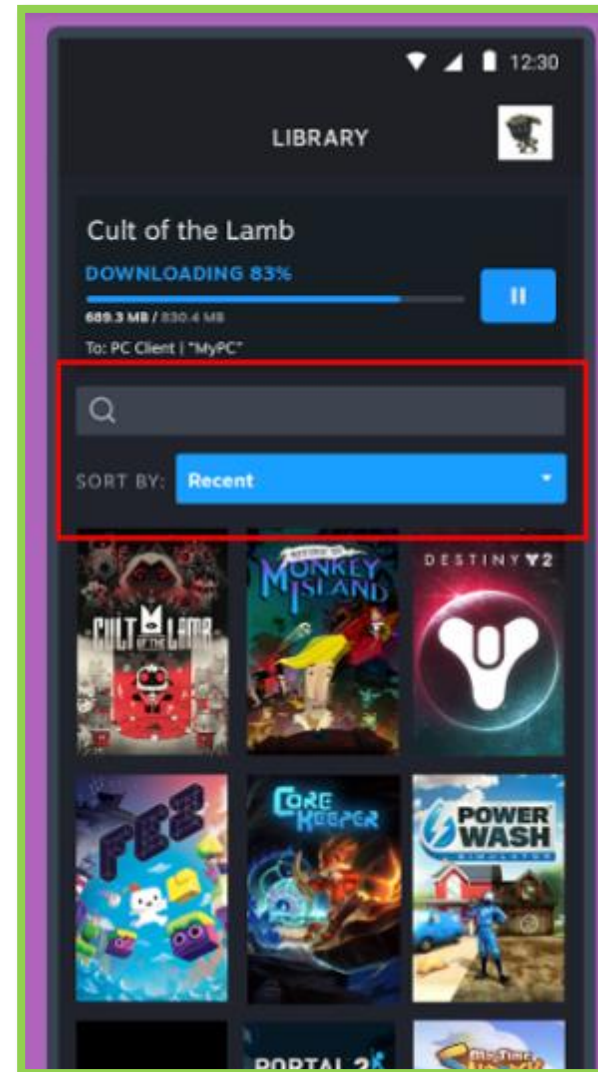
With nearly 30,000 games from AAA to indie and everything in-between. Enjoy exclusive deals, automatic game updates, and other great perks.

[Browse the Store →](#)

Source: <https://store.steampowered.com/about/>



Source: <https://store.steampowered.com/>



Source: <https://store.steampowered.com/>

Source: <https://play.google.com/store/apps/details?id=com.valvesoftware.android.steam.community&hl=en&gl=US&pli=1>

b) instructions for communicating to the client the identity of a node server having the specified content stored thereon,

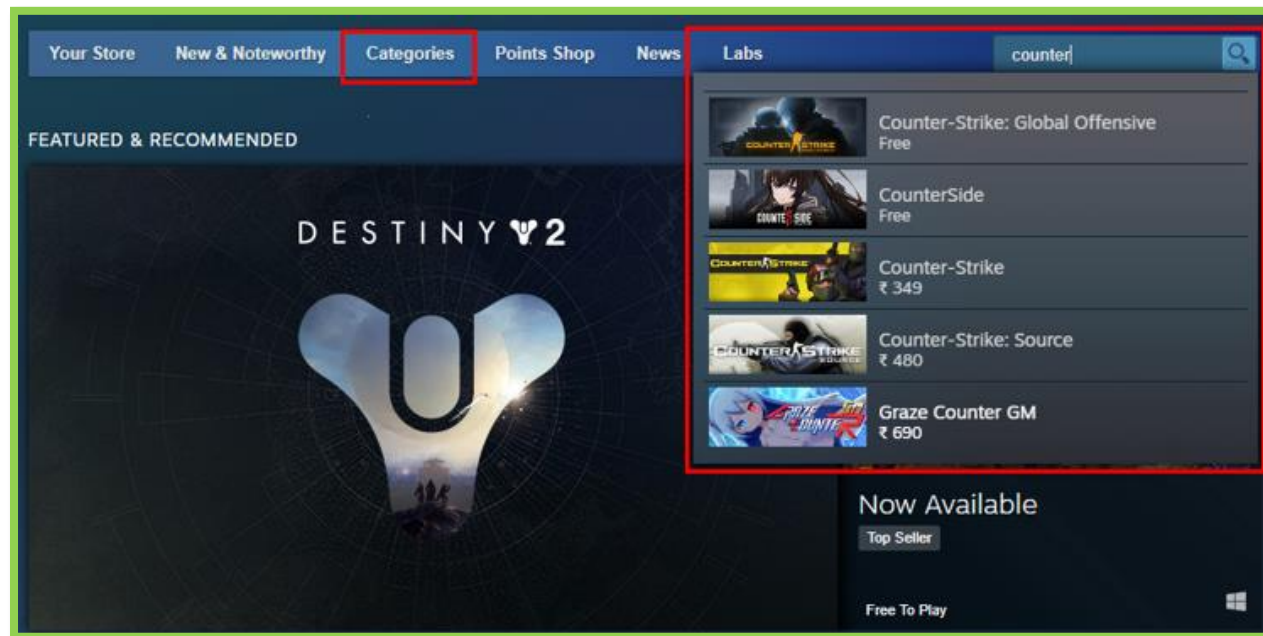
As shown below, when a user searches for any content (e.g., search games by different genres) in the search bar of the Steam application/web page, the instructions stored on the main server communicate the identity of the various serving nodes (i.e., various game developer or publisher) to the client device.

Access Games Instantly

With nearly 30,000 games from AAA to indie and everything in-between. Enjoy exclusive deals, automatic game updates, and other great perks.

[Browse the Store →](#)

Source: <https://store.steampowered.com/about/>




Source: <https://store.steampowered.com/>

All Games > Free to Play Games > Counter-Strike: Global Offensive

Counter-Strike: Global Offensive

Community Hub



Harz, Germany
17:25 GMT+1

Counter-Strike: Global Offensive (CS: GO) expands upon the team-based action gameplay that it pioneered when it was launched 19 years ago. CS: GO features new maps, characters, weapons, and game modes, and delivers updated versions of the classic CS content (de_dust2, etc.).

RECENT REVIEWS: **Very Positive** (119,399)
ALL REVIEWS: **Very Positive** (7,070,784)
RELEASE DATE: 21 Aug, 2012
DEVELOPER: Valve, Hidden Path Entertainment
PUBLISHER: Valve

Popular user-defined tags for this product:

FPS Shooter Multiplayer Competitive Action +

Play Counter-Strike: Global Offensive

Free to Play [Play Game](#)

Buy Prime Status Upgrade

Counter-Strike: Global Offensive and Counter-Strike 2 players with Prime Status are matched with other Prime Status players and are eligible to receive Prime-exclusive souvenir items, item drops, and weapon cases.

This package grants Prime Account Status in Counter-Strike: Global Offensive and in Counter-Strike 2.

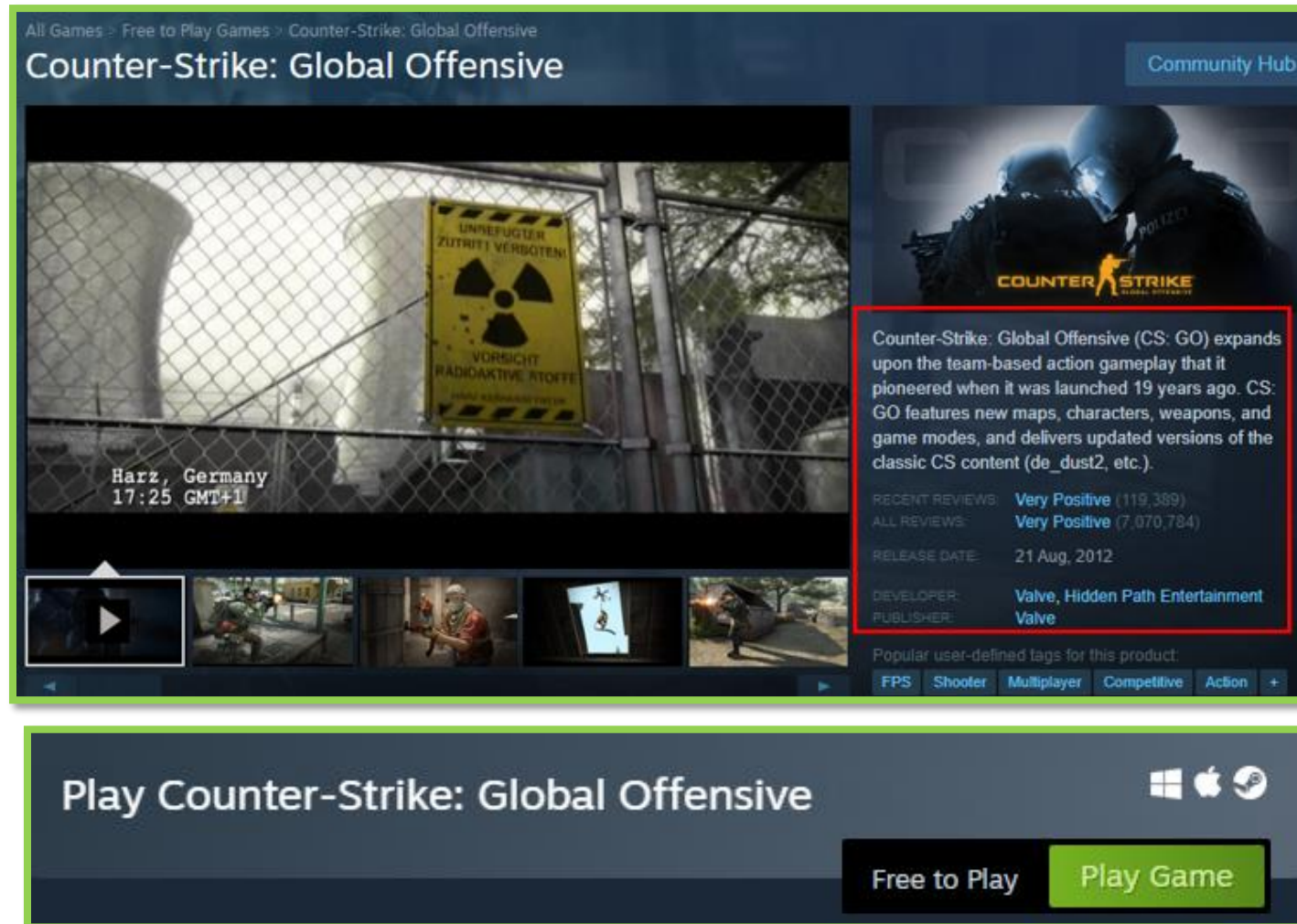
₹ 1,140 [Add to Cart](#)

This product is not eligible for refund. [Learn more](#)

Source: https://store.steampowered.com/app/730/CounterStrike_Global_Offensive/

c) thereby enabling the client to request transmission of the specified content from the node server; and

As shown below, the user may request transmission (i.e., play) of the specified content (e.g., games of different genres) from various serving nodes (i.e., various game developers or publishers) that are providing the specified content.



Source: https://store.steampowered.com/app/730/CounterStrike_Global_Offensive/

d) instructions for ascertaining that the node server transmitted the specified content to the client,

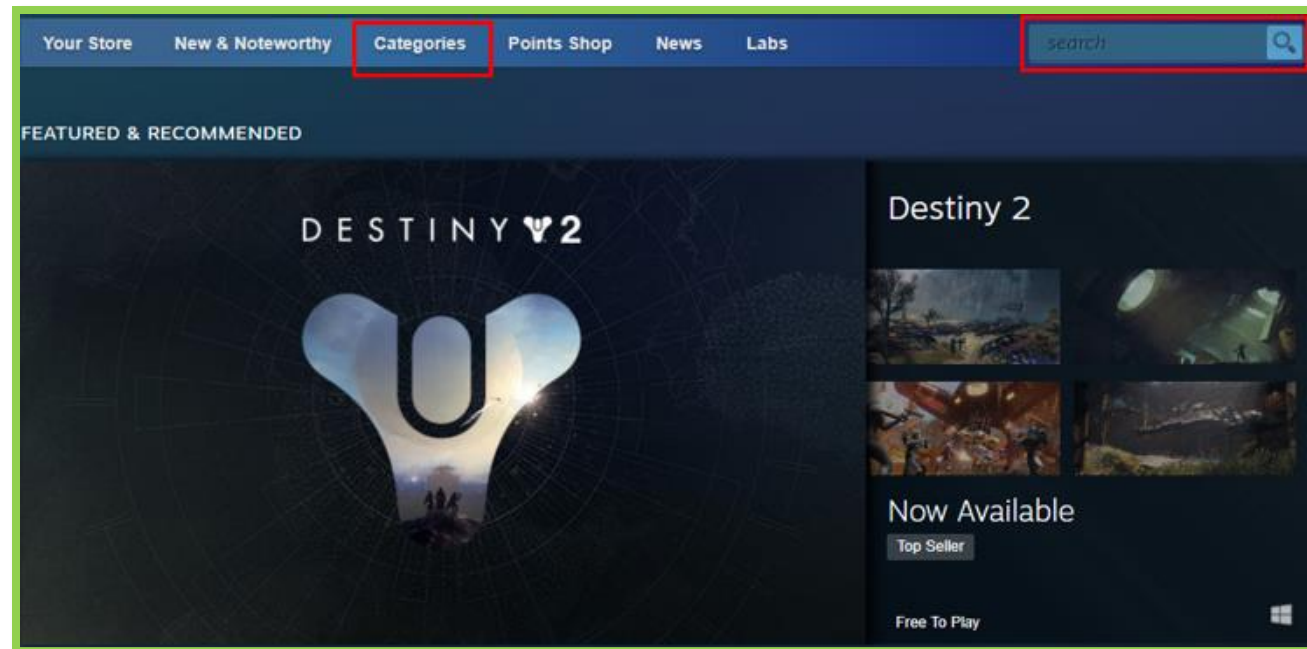
As shown below, Steam at the request of the user, then ascertains that the specified content is being transmitted to the user from the requested node server.

Access Games Instantly

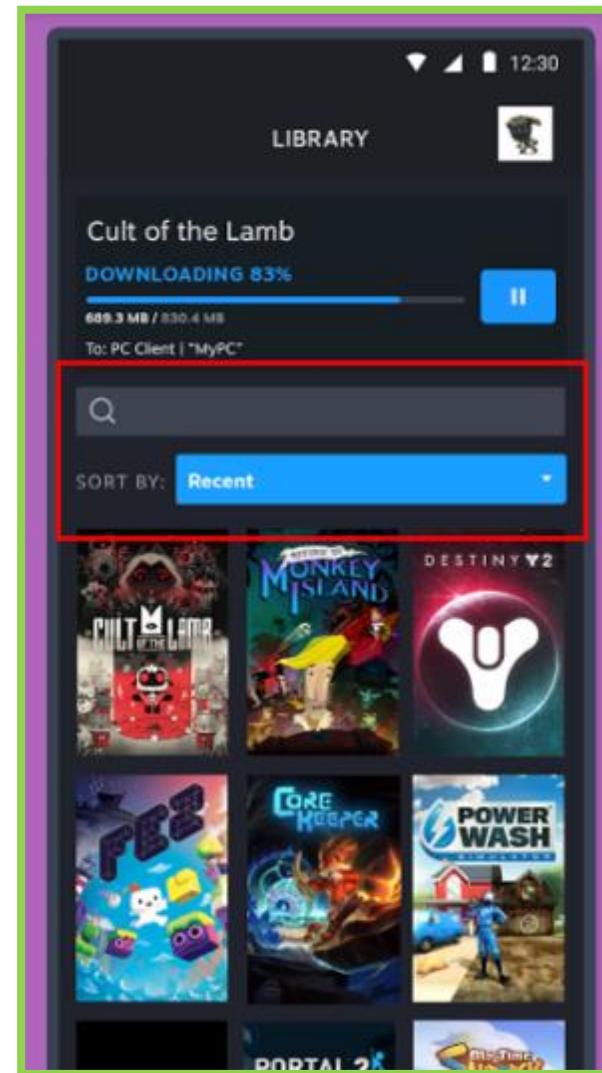
With nearly 30,000 games from AAA to indie and everything in-between. Enjoy exclusive deals, automatic game updates, and other great perks.

[Browse the Store →](#)

Source: <https://store.steampowered.com/about/>



Source: <https://store.steampowered.com/>




Source: <https://store.steampowered.com/>

Source: <https://play.google.com/store/apps/details?id=com.valvesoftware.android.steam.community&hl=en&gl=US&pli=1>


All Games > Free to Play Games > Counter-Strike: Global Offensive

Counter-Strike: Global Offensive

Community Hub



Harz, Germany
17:25 GMT+1



Counter-Strike: Global Offensive (CS: GO) expands upon the team-based action gameplay that it pioneered when it was launched 19 years ago. CS: GO features new maps, characters, weapons, and game modes, and delivers updated versions of the classic CS content (de_dust2, etc.).

RECENT REVIEWS: **Very Positive** (119,389)
ALL REVIEWS: **Very Positive** (7,070,784)

RELEASE DATE: 21 Aug, 2012

DEVELOPER: Valve, Hidden Path Entertainment
PUBLISHER: Valve

Popular user-defined tags for this product:

FPS Shooter Multiplayer Competitive Action +

Play Counter-Strike: Global Offensive

Free to Play [Play Game](#)

Source: https://store.steampowered.com/app/730/CounterStrike_Global_Offensive/

e) wherein an owner of the node server is offered an incentive as compensation for transmission of the specified content to the client.

As shown below, Steam offers a payment approach for cloud services. So, it must be a game developer or publisher who offers an incentive as compensation to the owner of the node server (e.g., Steam) for storage and transmission of the content to the user.

Steam Direct Fee

In order to get fully set up, you will need to pay a \$100.00 USD fee for each product you wish to distribute on Steam (the "Steam Direct Fee"). You can pay this fee with any payment method supported by Steam in your region, except methods that use the Steam Wallet.

Source: <https://partner.steamgames.com/steamdirect>

Steam Greenlight was phased out and replaced with Steam Direct in June 2017.^[251] With Steam Direct, a developer or publisher wishing to distribute their game on Steam needs only to complete appropriate identification and tax forms for Valve and then pay a recoupable application fee for each game they intend to publish. Once they apply, a developer must wait thirty days before publishing the game as to give Valve the ability to review the game to make sure it is "configured correctly, matches the description provided on the store page, and doesn't contain malicious content".^[251]

Source: [https://en.wikipedia.org/wiki/Steam_\(service\)#Steam_Direct](https://en.wikipedia.org/wiki/Steam_(service)#Steam_Direct)

STORE SMARTS

Your purchases stay with your Steam account. So even if you buy a new computer, all your games will be fully accessible on the new machine.

In addition, all your save games, inventory, personalization, and other data will be accessible from any PC, as well. Steam can be installed on Windows, MacOS, and Linux PCs. Steam libraries are even accessible remotely via phones, tablets, and TVs through the Steam Link app. You can log in to any PC, and all your games will be there. We don't believe in software that locks itself to being used only on one device (and we don't believe in trying to enforce platform exclusives) because those aren't things that customers ask us for.

Source: http://media.steampowered.com/apps/valve/2022/steamDeck_booklet_EN.pdf

Pitch Scientific

Submitted To: PATENT ASSET MANAGEMENT

INFRINGEMENT SEARCH REPORT:

US 8,856,221 B2

Submitted By: PITCH SCIENTIFIC

www.pitchscientific.com

Contents

BIBLIOGRAPHIC DETAILS (SUBJECT PATENT)	3
STEAM CLOUD.....	4
MAPPING CHART.....	5
DISCLAIMER	12

BIBLIOGRAPHIC DETAILS (SUBJECT PATENT)

Patent Number	US 8,856,221 B2
Title	System and method for storing broadcast content in a cloud-based computing environment
Earliest Priority Date	15 October, 2012
Filing Date	15 October, 2012
Grant Date	7 October, 2014
Assignee	ROTHSCHILD BROADCAST DISTRIBUTION SYSTEMS LLC
Inventor(s)	Leigh M. Rothschild
Number of Independent Claim	2
Number of Dependent Claims	11

STEAM CLOUD

Product Release Date	2023
Source Link	[Link 1] , [Link 2]
Company Name	Valve
US Sale or Use	Yes [Link]
Full Legal Name of The Company	Valve Corporation
Company Revenue	\$7.7 billion [Link]
Product Overview	The Steam Cloud provides an easy and transparent remote file storage system for your game. Files specified in the Auto-Cloud configuration or written to disk (created, modified, deleted, etc.) using the Cloud API will automatically be replicated to the Steam servers after the game exits.
Company Overview	Valve Corporation operates as a software company. The Company develops and publishes video games. Valve serves customers in the worldwide.

MAPPING CHART

Key Features (Claim 7 of US8856221B2)	Product (Steam Cloud)
<p>Claim 7. <u>A method for storing media content and delivering requested media content to a consumer device, the method comprising:</u></p>	<p>The <u>Steam Cloud allows games and the platform to utilize cloud storage hosted by Steam. Games can utilize Steam Cloud for storage of many different types of data, including game settings, save games, profile stats and other user-specific bits.</u></p> <p>Also, many games do not use Steam cloud to store save games. The <u>game developer will be able to help you find and transfer those files if you are using a new machine</u> and still have access to the old one.</p> <p>Source: https://help.steampowered.com/en/faqs/view/68D2-35AB-09A9-7678</p> <p>The <u>Steam Cloud provides an easy and transparent remote file storage system for your game. Files specified in the Auto-Cloud configuration or written to disk (created, modified, deleted, etc.) using the Cloud API will automatically be replicated to the Steam servers</u> after the game exits.</p> <p>Source: https://partner.steamgames.com/doc/features/cloud#initial-setup</p> <p><i>Remarks: Evidence discloses that the steam cloud provides the method for the storage of media contents like games and also for delivering or transferring the files (media content).</i></p>
<p>7.1 <u>receiving a request message including media data indicating requested media content and a consumer device identifier corresponding to the consumer device;</u></p>	<p>When deciding <u>where to write your save files, be sure the path will be unique for the current Steam user. If needed, you can get the user's unique Steam ID</u> via ISteamUser::GetSteamID. From that, <u>you can access their accountID from GetAccountID(), allowing you to have a unique variable when constructing your save path.</u></p> <p>Source: https://partner.steamgames.com/doc/features/cloud#initial-setup</p> <p>Also, many games do not use Steam cloud to store save games. The <u>game developer will be able to help you find and transfer those files if you are using a new machine and still have access to the</u></p>

Key Features (Claim 7 of US8856221B2)	Product (Steam Cloud)
	<p>old one. If you <u>no longer have access to the previous machine</u>, those save game cannot be recovered.</p> <p>Source: https://help.steampowered.com/en/faqs/view/68D2-35AB-09A9-7678</p> <p>The <u>userdata folder will contain unique Steam IDs, which correspond to the Steam accounts that have logged in on that machine.</u></p> <p>Within the <u>Steam ID folders are the respective games associated with those Steam accounts, listed by appID.</u> The following example is for Dota 2.</p> <p>Source: https://help.steampowered.com/en/faqs/view/68D2-35AB-09A9-7678.</p> <p>Remarks: Evidence discloses that there is unique Steam ID of stream user which logged on the machine requests for the media content (respective games) associated with those Steam accounts.</p>
<p>7.2 determining <u>whether the consumer device identifier corresponds to a registered consumer device</u>; and</p>	<p>When deciding <u>where to write your save files, be sure the path will be unique for the current Steam user. If needed, you can get the user's unique Steam ID via ISteamUser::GetSteamID. From that, you can access their accountID from GetAccountID(),</u> allowing you to have a unique variable when constructing your save path.</p> <p>Source: https://partner.steamgames.com/doc/features/cloud#initial-setup</p> <p>The <u>userdata folder will contain unique Steam IDs, which correspond to the Steam accounts that have logged in on that machine.</u></p> <p>Source: https://help.steampowered.com/en/faqs/view/68D2-35AB-09A9-7678#where</p> <p>The Steam Cloud allows games and the platform to utilize cloud storage hosted by Steam. Games can utilize Steam Cloud for storage of many different types of data, including game settings, save games,</p>

Key Features (Claim 7 of US8856221B2)	Product (Steam Cloud)
	<p>profile stats and other user-specific bits. Many <u>Steam client settings are also saved via the cloud, including collections, friend nicknames and anything changed via the Steam client</u> Settings menu. These <u>settings will persist on an account regardless of which machine it is logged into, as the settings are pulled from the cloud upon login.</u></p> <p>Within the <u>Steam ID folders are the respective games associated with those Steam accounts, listed by appID.</u> The following example is for Dota 2.</p> <p>Source: https://help.steampowered.com/en/faqs/view/68D2-35AB-09A9-7678#where</p> <p>Remarks: Evidence discloses that unique Steam ID corresponds to the stream users that have logged on the machine.</p>
<p>7.3 if it is determined that the consumer device identifier corresponds to the registered consumer device, then: determining, whether the <u>request message is one of a storage request message and a content request message; and</u></p>	<p>The <u>userdata folder will contain unique Steam IDs, which correspond to the Steam accounts that have logged in on that machine.</u></p> <p>Within the <u>Steam ID folders are the respective games associated with those Steam accounts, listed by appID.</u> The following example is for Dota 2.</p> <p>Source: https://help.steampowered.com/en/faqs/view/68D2-35AB-09A9-7678.</p> <p>Maximum size <u>for a call to ISteamRemoteStorage::FileWrite or ISteamRemoteStorage::FileWriteStreamWriteChunk</u></p> <p>If <u>you plan to read/write files directly via the ISteamRemoteStorage interface, then you can control platform sync via ISteamRemoteStorage::SetSyncPlatforms.</u> The default for a new file is to sync to all platforms.</p> <p>Source: https://partner.steamgames.com/doc/features/cloud#initial-setup</p> <p>Also, many games do not use Steam cloud to store save games. The game developer will be able to</p>

Key Features (Claim 7 of US8856221B2)	Product (Steam Cloud)
	<p><u>help you find and transfer those files if you are using a new machine and still have access to the old one.</u> If you no longer have access to the previous machine, those save game cannot be recovered.</p> <p>Source: https://help.steampowered.com/en/faqs/view/68D2-35AB-09A9-7678#where</p> <p><i>Remarks: Evidence discloses that the users have logged in on machine by the unique Steam IDs and read/write files directly via the ISteam RemoteStorage interface. So it is interpreted that the file can be stored and accessed by the user via the ISteamRemoteStorage interface and the platform sync via ISteamRemoteStorage can be controlled by user. ISteam RemoteStorage interface show weather the request message by the user is for the read or write i.e., storage request or content access request.</i></p>
<p><u>7.4 if the request message is the storage request message, then determining whether the requested media content is available for storage; and</u></p>	<p><u>Steam Auto-Cloud was designed for games where you choose to not integrate the Steam Cloud API.</u> It provides <u>a quick and easy way to get started but lacks the flexibility that is available with the Steam Cloud API.</u></p> <p>If you <u>prefer a deeper integration with Steam Cloud (for example, allowing to choose which save files are stored in the cloud), then you should use the Cloud API. Otherwise you can use Steam Auto-Cloud.</u></p> <p>Source: https://partner.steamgames.com/doc/features/cloud#initial-setup</p> <p>Steam Cloud <u>automatically stores files from your game on Steam's servers so your players can log into Steam and access their saved games from any computer.</u></p> <p>Configuration of file paths required on Steamworks website. Optionally, some <u>API calls required from within game code to Steamworks for upload, download, enumerate, and delete.</u></p> <p>Source: https://partner.steamgames.com/doc/features/cloud#initial-setup</p>

Key Features (Claim 7 of US8856221B2)	Product (Steam Cloud)
	<p>Remarks: Evidence discloses that the files (media content) are available for storing in the cloud can be determined by the steam cloud API. The steam cloud stores files automatically on server if there is media content to store.</p>
<p>7.5 if the request message is the content request message, then initiating delivery of the requested media content to the consumer device;</p>	<p>If the user changes computers, the <u>files are automatically downloaded to the new computer prior to the game launching. The game can then access the files by reading them through the Cloud API</u> or reading them directly from disk as usual. Avoid machine specific configurations such as video settings.</p> <p>Source: https://partner.steamgames.com/doc/features/cloud#initial-setup</p> <p>Steam Cloud <u>automatically stores files from your game on Steam's servers so your players can log into Steam and access their saved games from any computer.</u></p> <p>Configuration of file paths required on Steam works website. Optionally, some <u>API calls required from within game code to Steamworks for upload, download, enumerate, and delete.</u></p> <p>Source: https://partner.steamgames.com/doc/features/cloud#initial-setup</p> <p>Steam creates an <u>log entry any time that files are written to the cloud or retrieved from it.</u></p> <p>Source: https://help.steampowered.com/en/faqs/view/68D2-35AB-09A9-7678</p> <p>GeForce NOW is NVIDIA's <u>cloud-based game streaming service, delivering real-time gameplay straight from the cloud to your laptop, desktop, Mac, SHIELD TV, or Android device.</u></p> <p>Source: https://partner.steamgames.com/doc/features/cloudgaming</p> <p>Remarks: Evidence discloses that there is log entry by the user ID which request for media content and the data stored in the cloud can be accessed and retrieved anytime i.e, the media content (real-</p>

Key Features (Claim 7 of US8856221B2)	Product (Steam Cloud)
	time gameplay) can be delivered from the cloud to the consumer device (laptop, desktop, Mac, SHIELD TV, or Android device).
<p>7.6 wherein the <u>media data includes time data that indicates a length of time to store the requested media content</u>; and</p>	<p>You will most likely want to pick the version of the files that was modified most recently. This means you will have the progress made the last time you played the game. However, <u>you would want to carefully consider how the dates and times in the conflict window for the cloud save files correspond to your behavior and progress within the game.</u> This context will help you decide which files to select.</p> <p>Source: https://help.steampowered.com/en/faqs/view/68D2-35AB-09A9-7678</p> <p>Remarks: Evidence discloses the considered date and time for saving and storing the files in the cloud.</p>
<p>7.7 the first processor is further configured to <u>determine whether the requested media content exists</u>; and</p>	<p>Each time a user plays a game via Cloud Play they may be playing from a new virtual PC. <u>For this reason it is very important that your game has Steam Cloud enabled or has a separate online save system of its own.</u> If your game does not have either online save system, players of your game may lose their progress and saves when playing a game through a Steam Cloud Play service.</p> <p>Source: https://partner.steamgames.com/doc/features/cloudgaming</p> <p>Steam Cloud <u>automatically stores files from your game on Steam's servers so your players can log into Steam and access their saved games from any computer.</u></p> <p>Configuration of file paths required on Steamworks website. Optionally, some <u>API calls required from within game code to Steamworks for upload, download, enumerate, and delete.</u></p> <p>Source: https://partner.steamgames.com/doc/features/cloud#initial-setup</p> <p>Remarks: Evidence discloses that the files are stored on the stream server so that the players can</p>

Key Features (Claim 7 of US8856221B2)	Product (Steam Cloud)
	<p><i>request and access the media content from the server. The API (processor) calls for the required data to upload, download and delete. So, if the requested file is stored in the server then I can be accessed easily by the user.</i></p>
<p>7.8 if the processor determines that the requested media content exists, the processor is further configured to determine whether the requested media content is available and whether there are restrictions associated with the requested media content that prevent the requested media content from being delivered to the consumer device.</p>	<p>AV software hooks very <u>deep into user systems and can affect disk and network operations which may cause issues with Steam</u>. Some games also use copy protection technology that can appear as malicious software to an AV scanner, resulting in potential false-positive alerts.</p> <p>You'll want to work with a tech support specialist to ensure that your AV software is not interfering with Steam functionality. You may even need to temporarily disable it for testing purposes. It may also be necessary to add exceptions for Steam in your AV configuration.</p> <p>Source: https://help.steampowered.com/en/faqs/view/68D2-35AB-09A9-7678</p> <p>If you are continually experiencing <u>issues with Steam cloud functionality</u>, it's possible that <u>something is interfering with the cloud</u> or preventing it from working as expected.</p> <p>Certain <u>firewalls may prevent Steam from talking to its servers</u>. You'll want to work with a tech support specialist to ensure that the Firewall is not interfering. You may even need to temporarily disable it for testing purposes or add exceptions to your firewalls for Steam.</p> <p>Source: https://help.steampowered.com/en/faqs/view/68D2-35AB-09A9-7678#where</p> <p>The absolute <u>limits on file sizes for Steam Cloud may change over time. Here are some current limits and thresholds:</u></p> <p>Remarks: Evidence discloses that there is some restrictions associated with the requested files (media content) which prevent the media file to be stored and delivered in the cloud steam. It is interpreted that there is size limit associated with media file to be stored and transferred.</p>

DISCLAIMER

This report is based on the information contained in files sent via email, and searches and analyses conducted by experts in the relevant technical domain. This report is NOT to be used as a substitute for any legal opinion that may be given by a patent attorney by considering legal point of view. PITCH SCIENTIFIC shall not be liable or responsible for any loss or damage suffered by any of its clients on account of any loss of opportunity or fees/fines/penalties assessed against or incurred as a result of any acts or omissions on the part of PITCH SCIENTIFIC in preparation of this report.

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RESEARCH@PITCHSCIENTIFIC.COM

Infringement Claim Chart for U.S. Pat. No US9261365B2 Vs Valve Corporation (“Defendant”)

Claim 1	Evidence
<p>1. A method for receiving location information at a positional information device, the method comprising:</p>	<p>Defendant (Valve Corporation) provides a product Vive (or HTC Vive) featuring SteamVR tracking which is a hardware/software solution that lets the devices (positional information device) know in real-time where they are within a room (location information) using multiple sensors.</p>  <p>Source: https://store.steampowered.com/app/358040/VIVE_Cosmos_Elite/</p>

A proven solution - used in the HTC Vive

From prototype in late 2014 to consumer delivery in early 2016, the HTC Vive is the world's leading virtual reality experience. Built on top of the SteamVR tracking technology, the HTC Vive provides a unique, Room-Scale, 360° VR experience, used by hundreds of developers and hundreds of thousands of gamers world-wide to experience the latest VR games. The SteamVR Tracking component of the HTC Vive has been updated frequently with new features, optimizations, and bug fixes. Throughout the product launch and through innumerable game application updates, it has continued to provide the world's best VR experience.

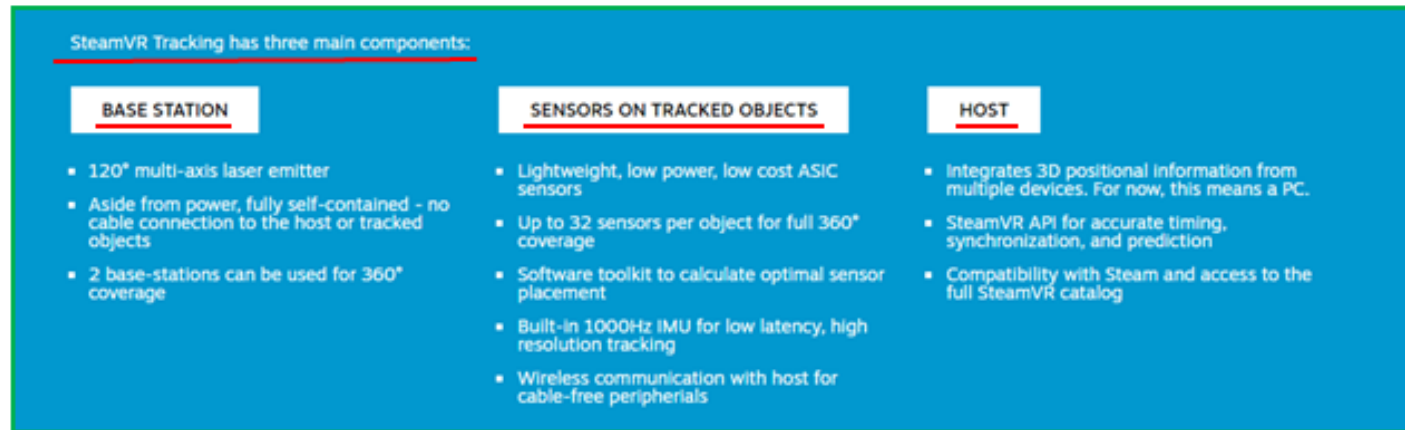


Source: <https://partner.steamgames.com/vrlicensing>

ABOUT THIS HARDWARE

VIVE Cosmos Elite is built for precision gaming. It comes paired with the VIVE Cosmos External Tracking Faceplate, which enables 360-degree, sub-millimeter SteamVR™ Tracking accuracy. The system provides the flexibility of modular faceplate technology for future VR and AR solutions.

Source: https://store.steampowered.com/app/358040/VIVE_Cosmos_Elite/



Source: <https://partner.steamgames.com/vrlicensing>

SteamVR™ Tracking

Whether you're building a VR golf club or an indoor quad-copter, 3D tracking is the heart of your product. Developed in-house at Valve, SteamVR Tracking is a hardware/software solution that lets your devices know in real time where they are, within a room. Valve is now making SteamVR Tracking fully available to other companies, without licensing fees.

Source: <https://partner.steamgames.com/vrlicensing>

How It Works

The SteamVR Tracking Basestations sweep the room with multiple sync pulses and laser lines, reaching out to about 5 meters. By keeping careful track of the timings between pulses and sweeps, the SteamVR Tracking system uses simple trigonometry to find the location of each sensor to within a fraction of a millimeter. By combining multiple sensors, 2 basestations, as well as adding a high speed IMU (inertial measurement unit), SteamVR also calculates the tracked object's orientation, velocity, and angular velocity, all at an update rate of 1000Hz.

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a) sending a request from a requesting positional information device to a server for at least one address stored in at least one sending positional information device, the request including a first identifier of the requesting positional information device;

Sending request to show real time location (i.e., at least one address stored) of user within a space includes first identifier (user login ID and password of Steam) of the requesting positional information device (e.g., PC) to the Steam server for transmitting the location of the user.

SteamVR™ Tracking

Whether you're building a VR golf club or an indoor quad-copter, 3D tracking is the heart of your product. Developed in-house at Valve, SteamVR Tracking is a hardware/software solution that lets your devices know in real time where they are, within a room. Valve is now making SteamVR Tracking fully available to other companies, without licensing fees.

Source: <https://partner.steamgames.com/vrlicensing>

SteamVR Tracking has three main components:

BASE STATION

- 120° multi-axis laser emitter
- Aside from power, fully self-contained - no cable connection to the host or tracked objects
- 2 base-stations can be used for 360° coverage

SENSORS ON TRACKED OBJECTS

- Lightweight, low power, low cost ASIC sensors
- Up to 32 sensors per object for full 360° coverage
- Software toolkit to calculate optimal sensor placement
- Built-in 1000Hz IMU for low latency, high resolution tracking
- Wireless communication with host for cable-free peripherals

HOST

- Integrates 3D positional information from multiple devices. For now, this means a PC.
- SteamVR API for accurate timing, synchronization, and prediction
- Compatibility with Steam and access to the full SteamVR catalog

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	<div data-bbox="705 248 1688 816"><div data-bbox="783 310 982 391">HOST</div><ul style="list-style-type: none">▪ <u>Integrates 3D positional information from multiple devices. For now, this means a PC.</u>▪ <u>SteamVR API for accurate timing, synchronization, and prediction</u>▪ Compatibility with Steam and access to the full SteamVR catalog</div> <p data-bbox="474 824 1213 865">Source: https://partner.steamgames.com/vrlicensing</p>
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How It Works

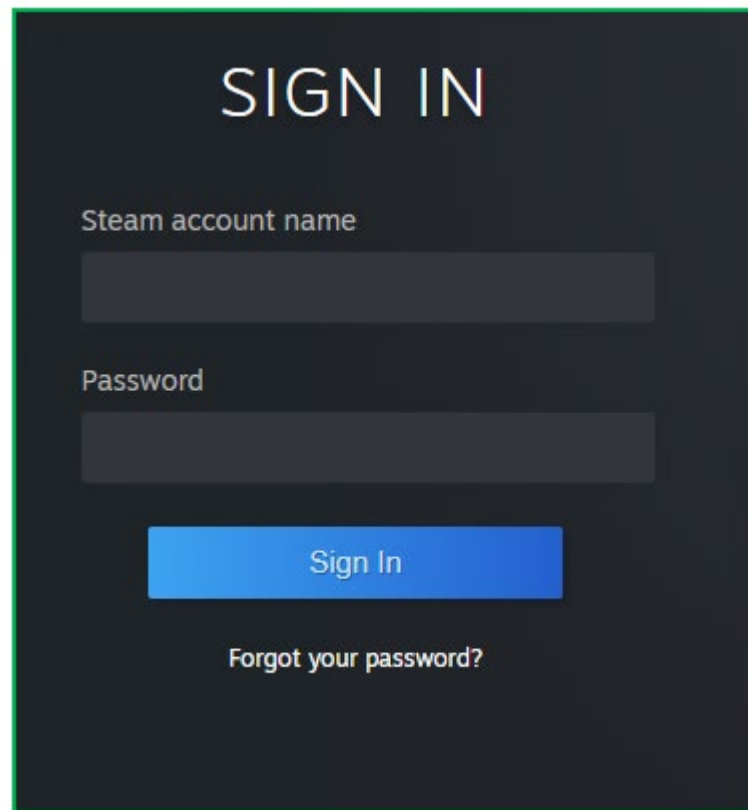
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ABOUT THIS HARDWARE

VIVE Cosmos Elite is built for precision gaming. It comes paired with the VIVE Cosmos External Tracking Faceplate, which enables 360-degree, sub-millimeter SteamVR™ Tracking accuracy. The system provides the flexibility of modular faceplate technology for future VR and AR solutions.

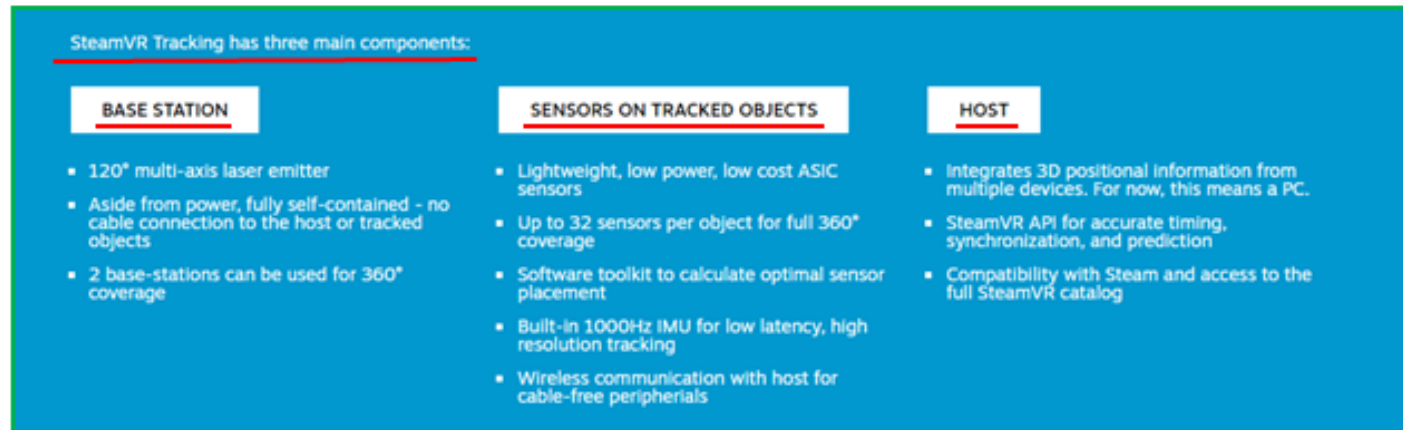
Source: https://store.steampowered.com/app/358040/VIVE_Cosmos_Elite/

A screenshot of the Steam login interface. It features a dark gray background with the text "SIGN IN" at the top in a light gray font. Below this, there are two input fields: "Steam account name" and "Password", both with dark gray text and light gray borders. A blue "Sign In" button is positioned below the password field. At the bottom, there is a link that says "Forgot your password?".

	<div data-bbox="808 240 1551 1045"></div>	
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Source: https://store.steampowered.com/login/?redir=app%2F358040%2FVIVE_Cosmos_Elite%2F&redir_ssl=1&snr=1_5_9_global-header

<p>b)receiving at the requesting positional information device, from the server, a retrieved at least one address to the requesting positional information device</p>	<p>The Steam server transmits the position of the user (i.e. at least one address) to the requesting positional information device (e.g., PC.).</p> <div data-bbox="512 355 1869 542"> <h3>SteamVR™ Tracking</h3> <p>Whether you're building a VR golf club or an indoor quad-copter, 3D tracking is the heart of your product. Developed in-house at Valve, SteamVR Tracking is a hardware/software solution that lets your devices know in real time where they are, within a room. Valve is now making SteamVR Tracking fully available to other companies, without licensing fees.</p> </div> <p>Source: https://partner.steamgames.com/vrlicensing</p> <div data-bbox="764 667 1623 1164"> <h3>HOST</h3> <ul style="list-style-type: none"> Integrates 3D positional information from multiple devices. For now, this means a PC. SteamVR API for accurate timing, synchronization, and prediction Compatibility with Steam and access to the full SteamVR catalog </div> <p>Source: https://partner.steamgames.com/vrlicensing</p>
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c) wherein the server determines a second identifier for identifying the at least one sending positional information device based on the received first identifier and retrieves the requested at least one address stored in the identified at least one sending positional information device.

The SteamVR tracking component of HTC Vive (requesting positional information device) requests (from the server) for the user's location (i.e., at least one address stored), before activating the multiple sensors (i.e., second identifier) needs to be added to the user's account identified by the user login ID and password (i.e., the first identifier). Hence, the multiple sensors (i.e., second identifier) is mapped to the user's login ID (i.e., the first identifier) for tracking the real-time location (i.e., at least one address stored) of user.



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SteamVR Tracking has three main components:

BASE STATION	SENSORS ON TRACKED OBJECTS	HOST
<ul style="list-style-type: none"> 120° multi-axis laser emitter Aside from power, fully self-contained - no cable connection to the host or tracked objects 2 base-stations can be used for 360° coverage 	<ul style="list-style-type: none"> Lightweight, low power, low cost ASIC sensors Up to 32 sensors per object for full 360° coverage Software toolkit to calculate optimal sensor placement Built-in 1000Hz IMU for low latency, high resolution tracking Wireless communication with host for cable-free peripherals 	<ul style="list-style-type: none"> Integrates 3D positional information from multiple devices. For now, this means a PC. SteamVR API for accurate timing, synchronization, and prediction Compatibility with Steam and access to the full SteamVR catalog

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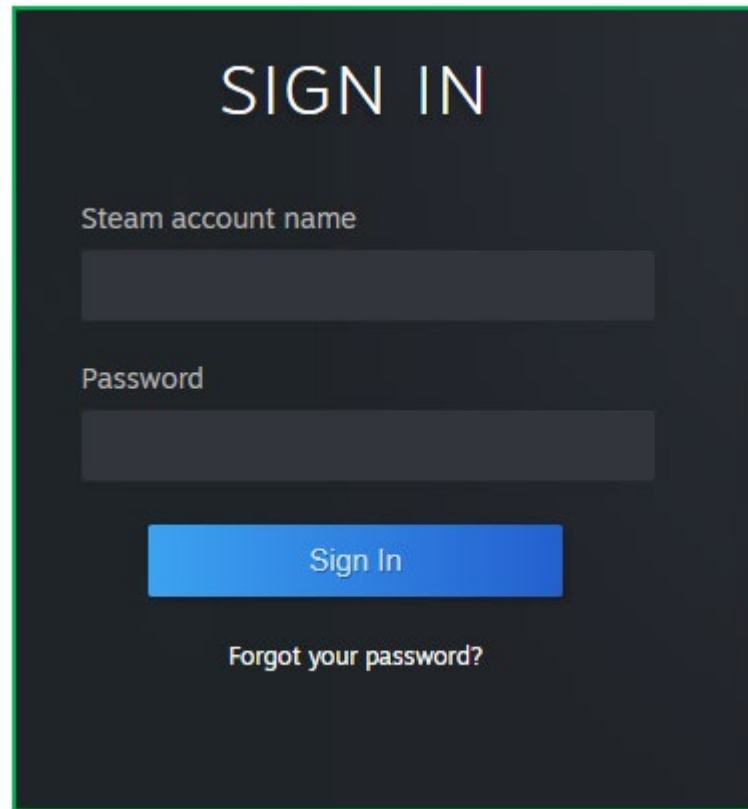
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SIGN IN

Steam account name

Password

Sign In

Forgot your password?

Source: https://store.steampowered.com/login/?redir=app%2F358040%2FVIVE_Cosmos_Elite%2F&redir_ssl=1&snr=1_5_9_global-header